

EPIDEMIOLOGICAL AND CLINICAL ISSUES OF PATIENTS WITH THICK BITES AND FIRST STAGE LYME DISEASE, IN BIHOR COUNTY

Csep Andrei *

*University of Oradea, Faculty of Medicine and Pharmacy, 10. Pta 1 Decembrie , 410073,
Oradea, Romania,
e-mail: csep.andrei@gmail.com

Abstract

Climate change affects the behavior of organisms, especially in case of migration of disease carrying insects (like mosquitoes, ticks). Higher temperatures, changing precipitation regime and various extreme weather events directly influence the distribution of serious cases and their number may increase.

Infectious diseases can spread quickly. Vector insects become resistant as these changes are frequent and increase the incidence of Lyme disease, West Nile, malaria and other (Mărculescu, 2016).

Bihor county, as border county is located in the area of vectors with upward trend in the last period.

Key words: Lyme disease, Borelliosis, tick bites, erythema migrans

INTRODUCTION

Borreliosis or Lyme disease, formerly known as *Erythema chronicum migrans*, Bannwarth syndrome, is part of the zoonosis category that occurs accidentally in humans (Chiotan, 2011; Crișan, 2015). It is produced by a *Borrelia burgdorferi sensu lato* spirochete that contains several pathogenic serotypes, transmitted to humans through ticks of the species *Ixodes* (Coipan, Vladimirescu, 2010; Drăghici, 2015).

The evolution of the disease (Cupșa, 2015; Voiculescu, 1980) comprises 3 stages:

- the first stage, characterized by the presence of the erythema migrans,
- the second stage, with skin, cardiac and neurological manifestations and
- the third stage, with persistent clinical evolution of the disease.

MATERIAL AND METHOD

There are studied a number of 1200 patients who presented at the emergency room of The Municipal Clinical Hospital „Dr. Gavril Curteanu” Oradea, Infectious Diseases section, between 01.01.2015-31.12.2018,

having been bitten by ticks in different parts of the body. The positive diagnosis of Lyme disease was supported by the presence of migratory erythema, respectively of the positive serology for Lyme disease (ELISA and Western-Blot) (Hoeprich et al., 2005; Mandell et al., 2019)

RESULTS AND DISCUSSION

- The number of tick bites has increased significantly every year, the highest percentage being in 2018 with over 1/3 (34.58 %) of the total presentations to emergency room over the last 4 years (Table 1; Fig.1).

Table 1

The number of tick bites registered between 2015-2018					
Year	2015	2016	2017	2018	Total
Nr.	195	250	340	415	1200
%	16,25	20,83	28,34	34,58	100%

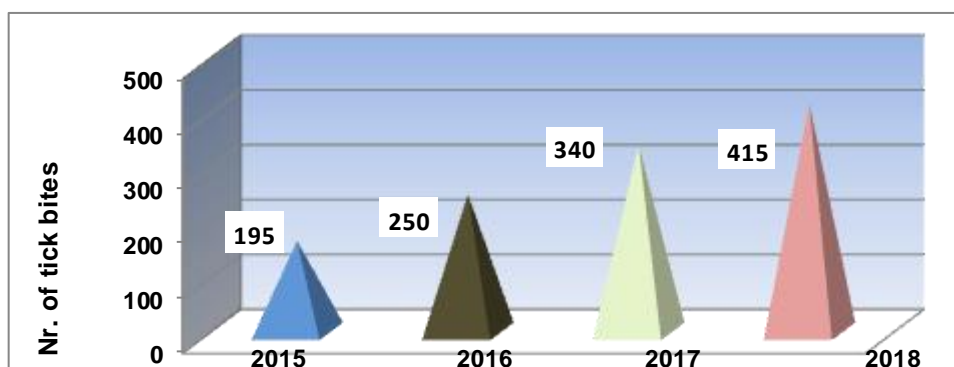


Fig.1. Evolution of tick bites registered between 2015-2018

-Not all patients with tick bites developed Lyme disease. 15.2% (183 persons) of the 1200 patients had positive serology for *Borrelia burgdorferi sensu lato* (Fig.2).

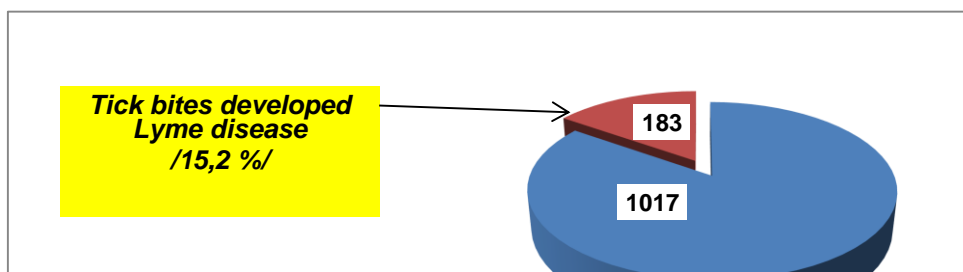


Fig.2. The presence of Lyme disease developed after tick bites

-The majority of patients reported only one tick bite, these being 80% of cases, the remaining 20% being bitten by two or more ticks in a very short period of time (Fig.3).

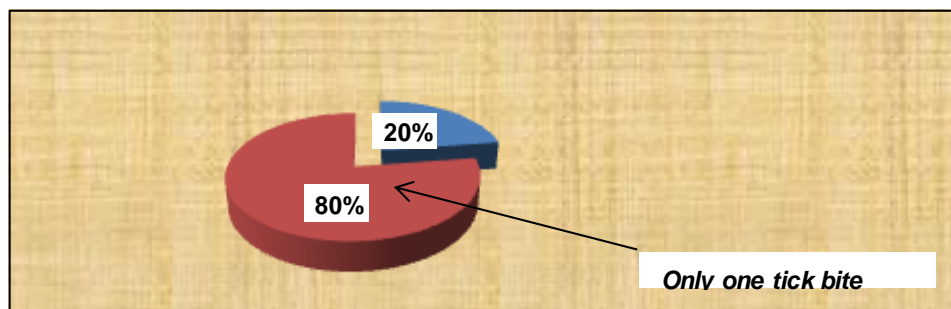


Fig.3. Distribution of cases according to number of tick bites

- The location of the tick bite was uneven, the most exposed area being the anterior and posterior thorax in 1/3 of the cases (33.3%) (Table 2; Fig.4).

Table 2.

Locations of the tick bites					
Upper limbs	Lower limbs	Thorax	Abdomen	Scalp	Total
26,67	24,83	33,3	19,5	1,66	100 %
320	298	400	162	20	1200

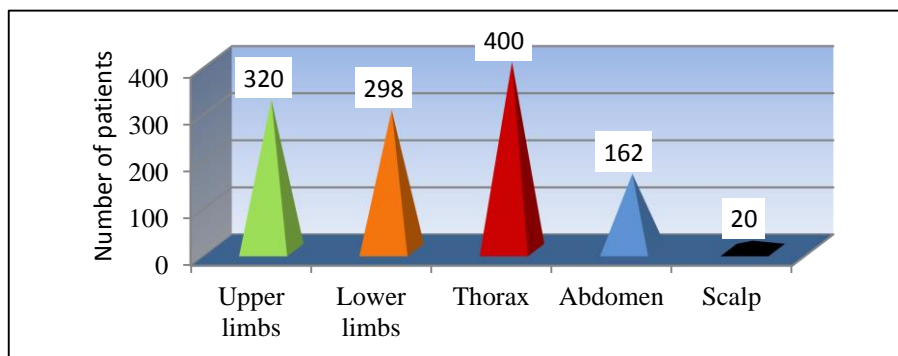


Fig.4. Distribution of tick bites according to the body region

- In patients diagnosed with Lyme disease, the most frequent location of erythema migrans has been reported in the abdominal area, although this part of the body is covered by clothing, which would protect from an eventual biting (Table 3; Fig.5).

Table 3.

Locations of the erythema migrans					
Upper limbs	Lower limbs.	Thorax	Abdomen	Scalp	Total
16,53	13,11	32,77	36,66	1,1	100 %
31	24	60	66	2	183

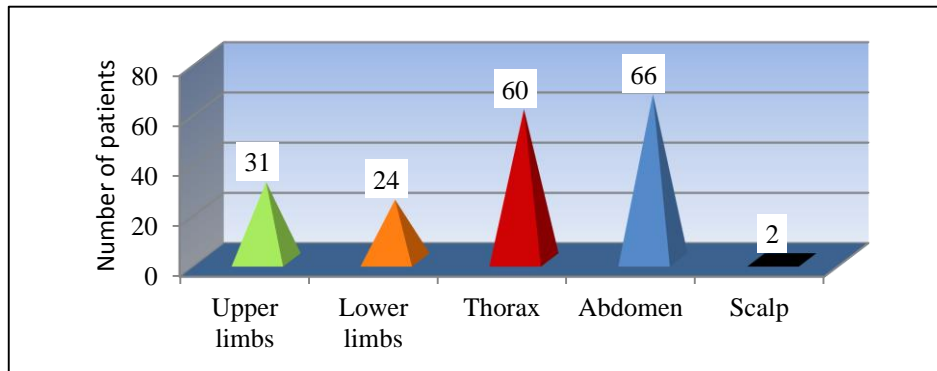


Fig.5. Distribution of the location of erythema migrans

- The appearance of the erythema migrans was the most frequent within the period 16-20 days from the time of the bite (73 cases), with a percentage of 38.9% of the cases (Fig.6).

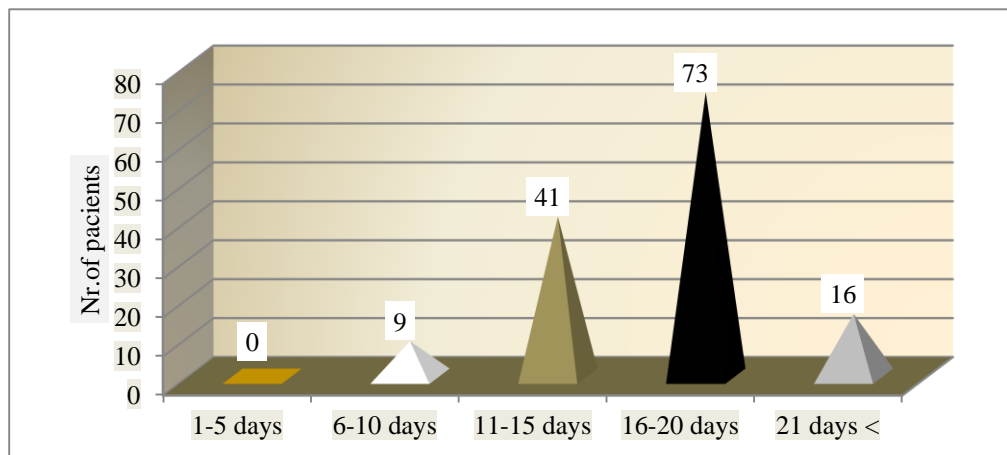


Fig. 6. The time required of erythema migrans appearance

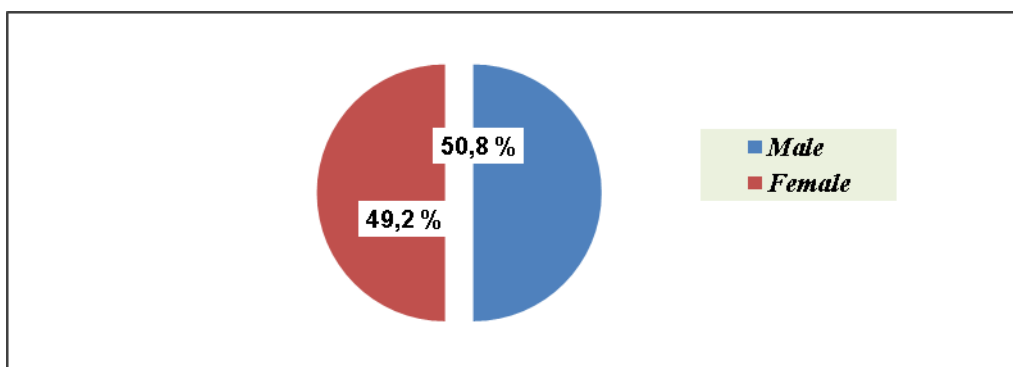


Fig.7. Gender distribution of the patients

Gender of the patients has no significant influence on the disease appearance (Fig.7).

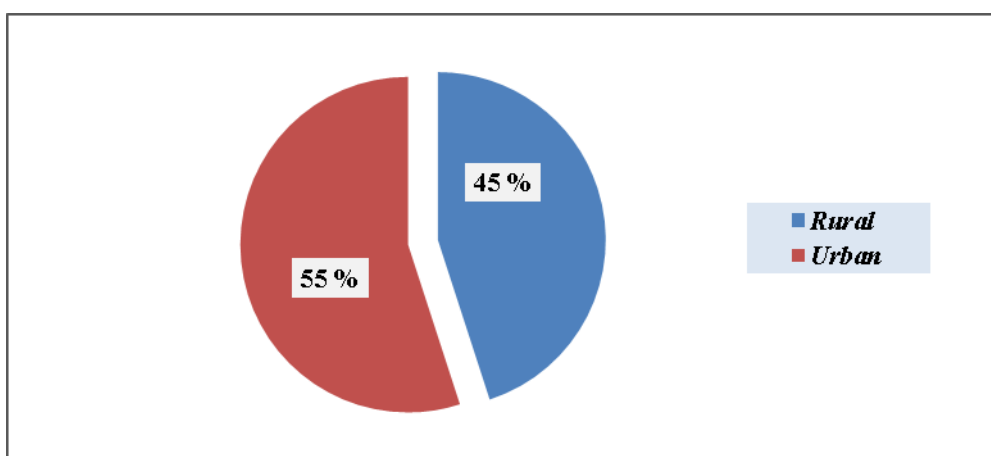


Fig.8 The origin of the patients with Lyme disease

The percentage of patients from urban area was insignificantly higher in comparison with the patients from rural area (Fig.8).

CONCLUSIONS

1. Lyme disease is a disease with increasing incidence during the four years covered by the presented study.
2. The majority of patients reported only one tick bite, these being 80% of cases, in various body regions.
3. Erythema migrans has been reported with high percent in the abdomen area, who appeared after 11- 20 days from the time of bites.

4. Gender of the patients has no significant influence on the disease manifestation.

5. The percentage of patients from urban area was insignificantly higher in comparison with the patients from rural area.

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